

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Continental Resources, Inc.
Well Name/Number: Shevlin 2-20H
Location: NW NW Section 20 T23N R55E
County: Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, long time drilling, will require about 30 to 40 days drilling time.
Unusually deep drilling (high horsepower rig): No, will utilize a triple derrick drilling rig to drill a single lateral Bakken Formation horizontal well, 20,109'MD/10,082'TVD.
Possible H₂S gas production: Slight chance of H₂S gas from Mississippian Formations.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

Mitigation:

- ☒ X Air quality permit (AQB review)
- ☐ Gas plants/pipelines available for sour gas
- ☐ Special equipment/procedures requirements
- ☐ Other: _____

Comments: No special concerns – using triple rig to drill a single lateral Bakken Formation horizontal well, 20,109'MD/10,082'TVD. If there are existing pipeline for gas in the area then associated gas must be tied into system or if no gathering system nearby associated gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling fluids to drill the intermediate casing string hole and saltwater/brine fluid system to drill the horizontal lateral. Freshwater and freshwater mud system to be used to drill the surface hole.

High water table: No high water table anticipated at this location.

Surface drainage leads to live water: Yes, nearest drainage is an unnamed ephemeral tributary drainage to East Fork Fox Creek, about 1/8 of a mile to the east from this location.

Water well contamination: No, closest water wells are about 3/4 of a mile to the northwest, about 3/4 of a mile to the southwest, about 7/8 of a mile to the west northwest, about 7/8 of a mile to the southwest, about 1 mile to the west northwest, and further than 1 mile in any direction from this location. Depth of these stock water wells range from 8' to 390'. Surface hole will be drilled with freshwater and freshwater drilling fluids. Surface casing will be set at 1830' and cemented to surface.

Porous/permeable soils: No, silty sandy clay soils.

Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:

- ☒ X Lined reserve pit
- ☒ X Adequate surface casing
- ☐ Berms/dykes, re-routed drainage
- ☒ X Closed mud system
- ☒ X Off-site disposal of solids/**liquids (in approved facility)**
- ☐ Other: _____

Comments: 1830' of surface casing cemented to surface adequate to protect freshwater zones and will cover the base of the Fox Hills Formation.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: Yes possible high erosion on cut and fill slopes, moderate cut, up to 22.4' and moderate fill, up to 15.0', required.

Loss of soil productivity: No, location will be restored after drilling if unproductive. If productive, unused portion of this drilling location will be restored.

Unusually large wellsite: No, large wellsite, 500'X300' location size required.

Damage to improvements: Slight, surface use appears to be cultivated fields.

Conflict with existing land use/values Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Access will be over existing county road, #324 and section line roads. About 240' of new access road will be built into this location from the west from county road #324.

Cuttings will be buried in the lined reserve pit. Oil based invert drilling fluids will be recycled.

Reserve pit fluids and completion fluids will be trucked to a commercial SWD well. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 3/8 of a mile to the northwest, about 3/4 of a mile to the west and about 1 mile to the southwest from this location.

The town of Lambert, Montana is about 5.5 miles to the southeast from this location.

Possibility of H2S: Slight chance from Mississippian Formations.

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time required.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing cemented to surface and operational BOPs should mitigate any problems. (5,000psig annular, pipe and blind rams) equipment (Rule 36.22.1014) to prevent well control problems. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Fox Lake State Game Management Area is about 4.1 miles to the south southeast.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH tracker website for this Township and Range lists no species of concern.

Mitigation:

☐ Avoidance (topographic tolerance/exception)

☐ Other agency review (DFWP, federal agencies, DSL)

☐ Screening/fencing of pits, drillsite

☐ Other: _____

Comments: Private cultivated surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

☐ avoidance (topographic tolerance, location exception)

☐ other agency review (SHPO, DSL, federal agencies)

☐ Other: _____

Comments: On private cultivated surface lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

☐ Substantial effect on tax base

☐ Create demand for new governmental services

☐ Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

Will drill a single lateral Bakken Formation horizontal well, 20,109'MD/10,082'TVD. No special concerns.

Summary: Evaluation of Impacts and Cumulative effects

No significant long term impacts expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: August 21, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Water wells in Richland County
(subject discussed)
August 21, 2012
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County
(subject discussed)

August 21, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T23N R55E
(subject discussed)

August 21, 2012
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____